DTH3006PTQ

30A SUPER-FAST EPITAXIAL RECTIFIER

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F (V)	I_R (µA)
600	30	2.4	100

Features and Benefits

- Soft, Super-Fast Switching Capability
- Glass Passivated Die Construction
- Rating to 600V Peak Reverse Voltage
- High Reliability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DTH3006PTQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

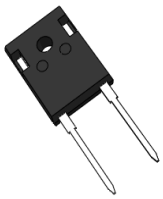
Description and Applications

Suitable for switching power supplies and power switching circuit applications.

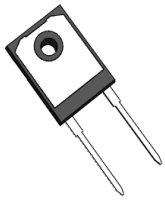
Mechanical Data

- Package: TO247-2
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 5.9 grams (Approximate)

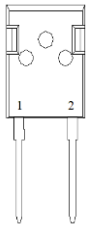
TO247-2 (Type WX)



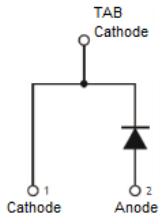
Top View



Bottom View



Top View Pin-Out



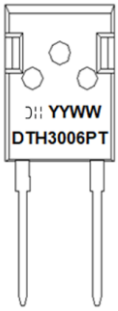
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Quantity	Carrier
DTH3006PTQ	TO247-2 (Type WX)	30 Pieces	Tube

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

TO247-2 (Type WX)



DTH3006PT = Product Type Marking Code
= Manufacturers' Marking
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 24 for 2024)
WW = Week Code (01 to 53)

Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V_{RRM} V_R	600	V
Average Rectified Output Current, @ T_C = +120°C	I_O	30	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	350	A
Avalanche Energy, L = 15mH	E_{AS}	20	mJ
ESD Rating — Human Body Model ESD Rating — Charged-Device Model	HBM CDM	4 1	kV

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5. 6)	$R_{\theta JC}$	1	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)		$V_{(BR)R}$	600	—	—	V	I_R = 100µA
Forward Voltage (Note 8)		V_F	— —	— 1.53	2.4 2.1	V	I_F = 30A, T_J = +25°C I_F = 30A, T_J = +125°C
Reverse Leakage Current (Note 7)		I_R	— —	— 0.09	100 1	µA mA	V_R = 600V, T_J = +25°C V_R = 600V, T_J = +125°C
Typical Total Capacitance		C_T	—	155	—	pF	(Note 9)
Reverse Recovery Time	T_J = +25°C	t_{RR}	—	27.8	—	ns	I_F = 1A, dI_F/dt = 100A/µs, V_R = 30V
			—	—	45		I_F = 30A, dI_F/dt = 100A/µs, V_R = 30V
Reverse Recovery Current	T_J = +25°C T_J = +125°C	I_{RM}	—	3.57 9.23	—	A	I_F = 30A, dI_F/dt = 200A/µs, V_R = 400V
Reverse Recovery Charge	T_J = +25°C T_J = +125°C	Q_{RR}	—	95.8 441.0	—	nC	

Notes:
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on fin-type heatsink 75mm x 100mm x 26.8mm.
7. Short duration pulse test used to minimize self-heating effect.
8. 300µs pulse width, 2% duty cycle.
9. Measured at 1.0MHz and applied voltage of 4.0V DC.

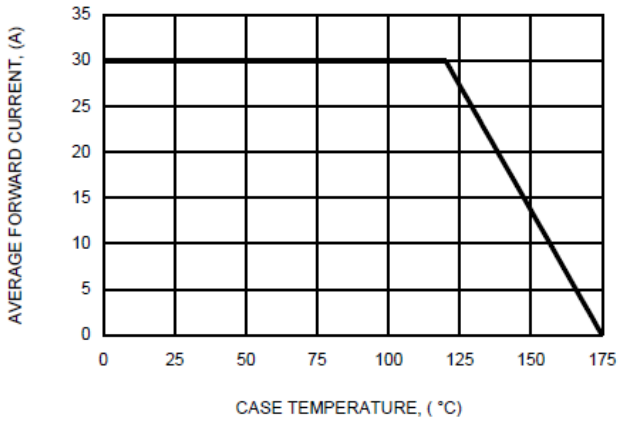


FIG.1-FORWARD CURRENT DERATING CURVE

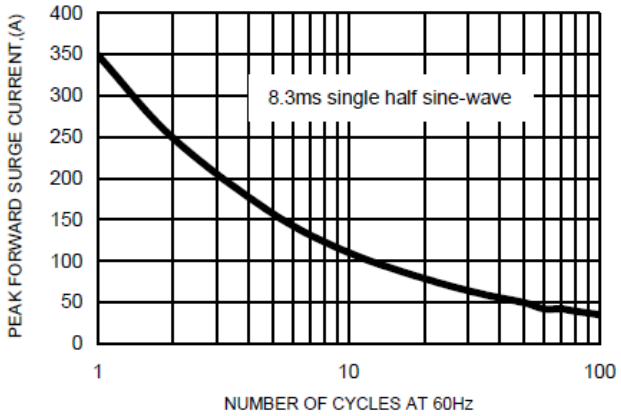


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

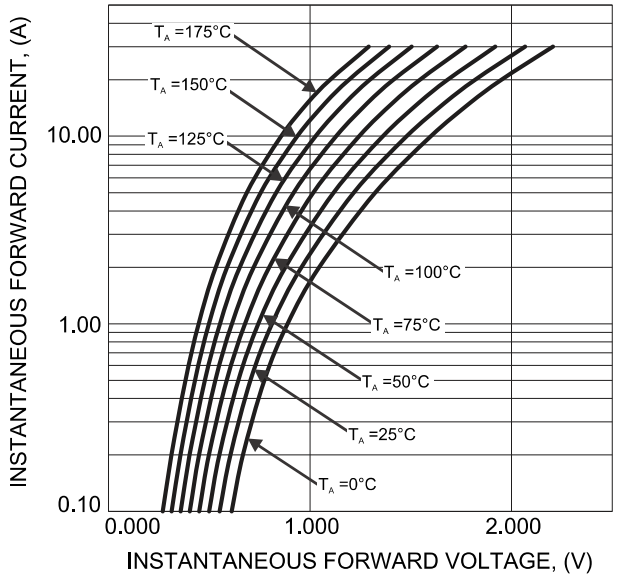


FIG.3-TYPICAL FORWARD CHARACTERISTICS

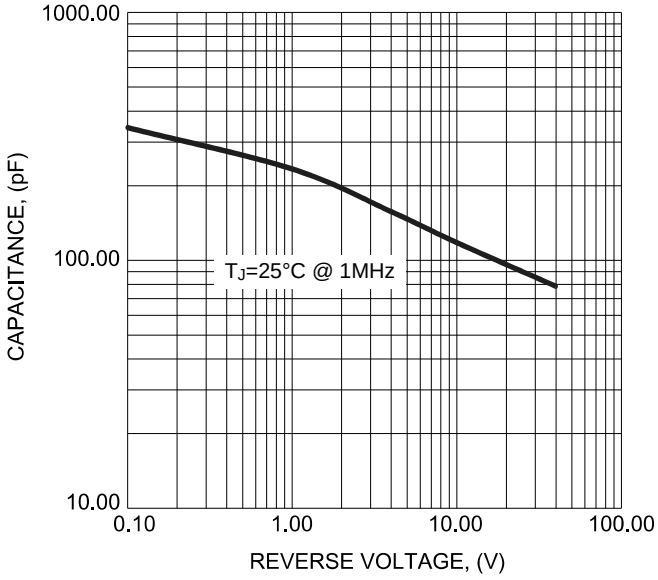


FIG.4-TYPICAL TOTAL CAPACITANCE

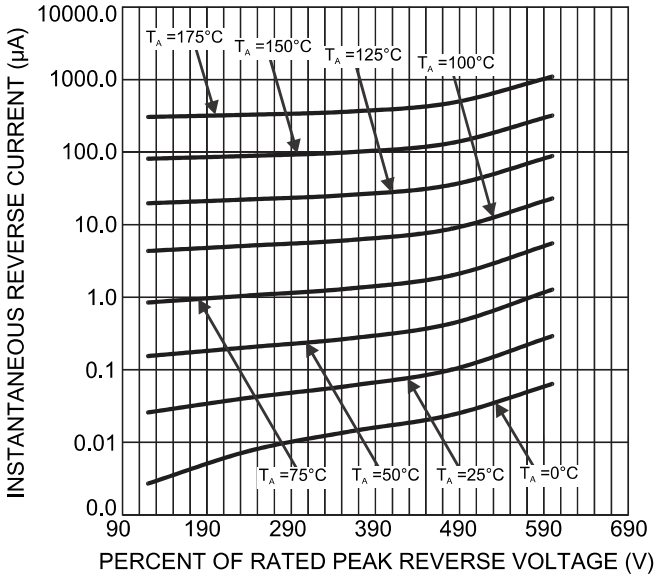
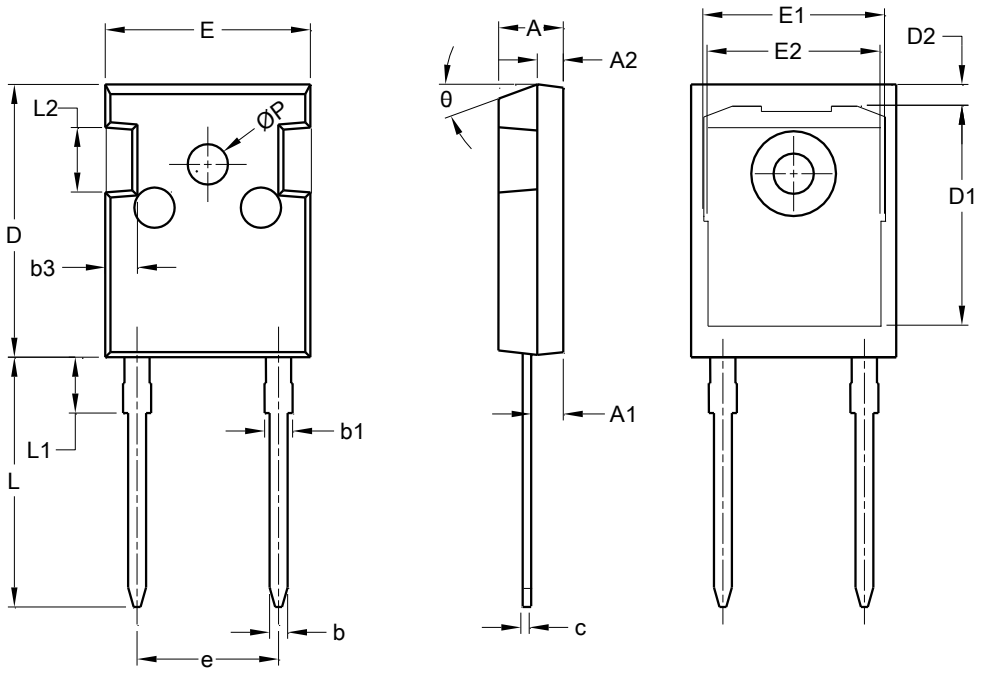


FIG.5-TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

TO247-2 (Type WX)



TO247-2 (Type WX)			
Dim	**Min**	**Max**	**Typ**
A	4.87	5.13	5.00
A1	2.10	2.40	2.38
A2	1.88	2.08	1.98
b	1.12	1.22	1.20
b1	1.90	2.16	2.00
b3	1.93	2.18	2.05
c	0.51	0.76	0.60
D	21.25	21.75	21.50
D1	--	--	16.93
D2	--	--	1.60
E	15.75	16.25	16.00
E1	--	--	14.02
E2	--	--	13.30
e	10.60	11.10	10.88
L	19.60	20.10	19.85
L1	3.78	4.38	4.08
L2	--	--	4.40
ØP	2.90	3.20	3.10
θ	--	--	20°
All Dimensions in mm			

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